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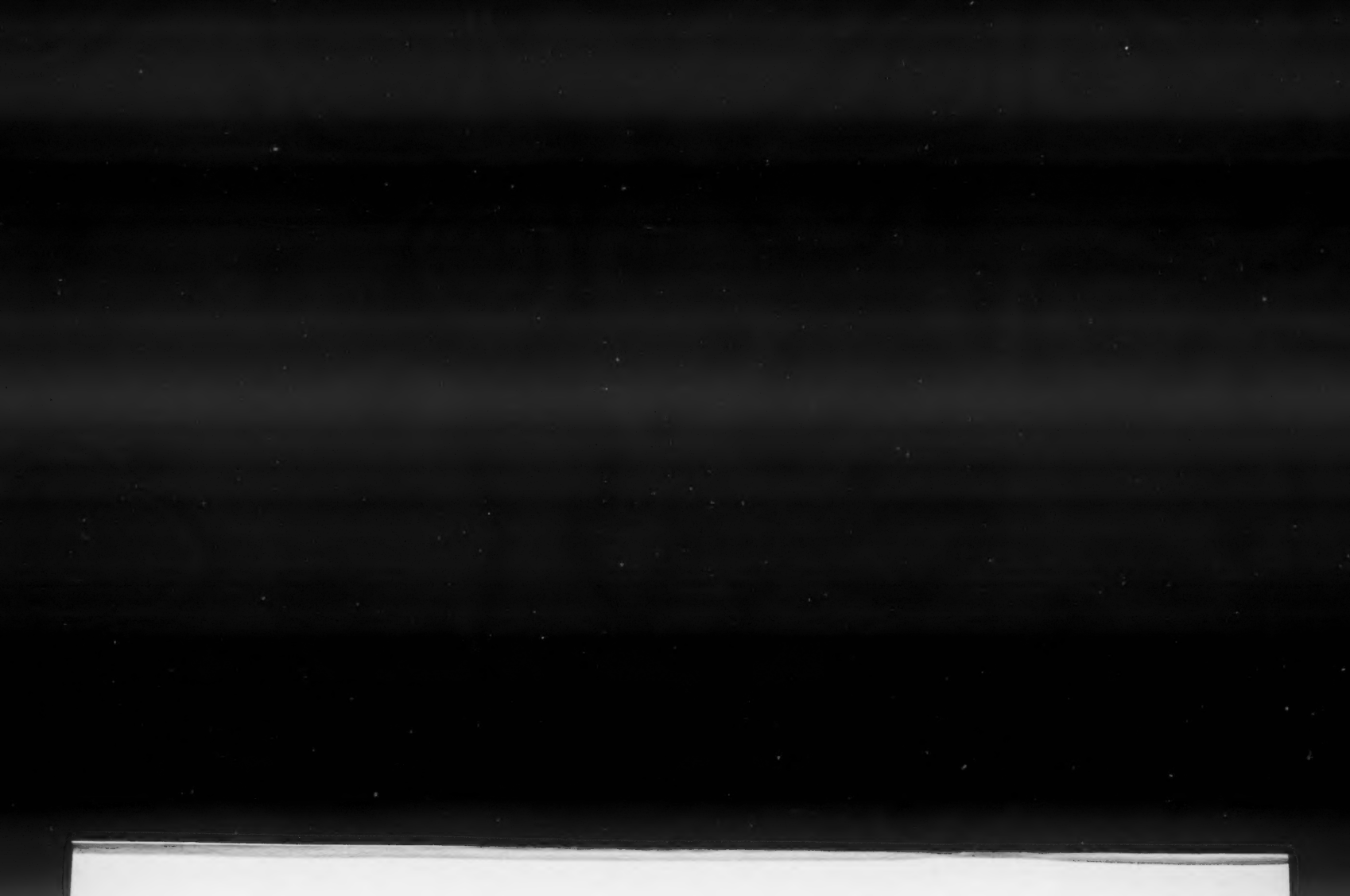

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CONTENTS

HYPNOSIS AS AN ADJUNCT IN ANESTHESIOLOGY
Albert M. Betcher, M.D. 93

HYPNOSIS INDUCING CANNABINOLE ANALOGS
Mahmoud K. Muftic, M.D. 106

BOOK REVIEW
Victor J. Tofany, M.D. 116

LETTER TO THE EDITOR 117

Journal of the American Society of Psychosomatic Dentistry and Medicine

HYPNOSIS AS AN ADJUNCT IN ANESTHESIOLOGY

By ALBERT M. BETCHER, M.D.,
(From the Department of Anesthesiology,
Hospital for Joint Diseases)

THE continuing challenge to the anesthesiologist of major surgical procedures has produced technics which embody new pharmacologic agents, electronic devices, hypothermia, and extracorporeal circulation. It may well be that anesthesiology will become a push-button specialty.[1] It is our feeling, however, that we would be remiss in our duty if we did not focus attention on the patient as a sensitive individual, subject to fears and apprehension, who is faced with an experience wherein he knows that he is to surrender himself to a stranger and from which he may not return. Hypnosis may be a useful tool in anesthesiology to add depth to the patient-doctor relationship and to render the patient more suitable for anesthesia. The object of this paper is to attempt to clarify some of the trends taking place by which hypnosis can be integrated with the other adjuvants of anesthesia.

Dramatic use of hypnosis has been made for the prevention of pain in surgery long before the advent of chemical anesthesia. Its first specific use in operations was perhaps initiated in France by Recamier in 1821 and by Cloquet in 1829.[2] Other experiences with hypnosis in surgery were reported by Elliotson[3] in Edinburgh, Braid[4,5] in England, and Esdaille[6] in India between 1840 and 1850. The widespread use of chemoanesthesia after 1846 prevailed from then on until 1938, when a re-evaluation of the use of hypnosis in anesthesia was begun by Raginsky.[7] Since then there have appeared reports of its use in various surgical, obstetric, and dental procedures either alone or in conjunction with chemoanesthesia.[8-15] Hypnosis has been utilized, also, to overcome a patient's inability to retain a Levin tube[15] and in treating posoperative hiccup.[17]

Hypnosis in Preparation of Patient for Surgery

The average patient is understandably terrified at the thought of an operation and perhaps even more so at the thought that he must go to sleep, not of his own free will but at the hands of someone else. The anesthesiologist must, therefore, show sympathy

toward the patient and should remember that he is dealing with a human being.[18,19] One should not treat every patient as just a routine case.

Schultz[20] has classified the various fears that patients present in the preoperative period. Among these are the following fears: of injections, of anesthesia, that he may tell his secrets during the induction period, of suffocating, that the operation may start too early, that he may awaken during surgery, that he may not awaken during surgery, that he may not awaken after the operation, of mutilation, of cancer, of postoperative vomiting and of postoperative therapy.

It is the duty of the anesthesiologist to ascertain these fears during the preoperative visit on the evening before surgery. It is at this first meeting that the anesthesiologist, trained in hypnosis, can to a considerable extent, calm an agitated patient by an attitude of confidence and ease, and give the necessary reassurances. If he accomplishes this, he has used a form of hypnosis. Often this is all that is necessary. If he can establish rapport with the patient so that the latter willingly cooperates or responds to his suggestions, he can further determine the range and the depth of hypnosis he can attempt.

CASE 1.—A fifty-six-year-old white male entered the hospital for the repair of an inguinal hernia. He was obviously agitated and extremely apprehensive when he was visited the evening before surgery. He spoke only of being afraid he would not be able to stand the operation. His history and physical examination revealed no organic abnormality except for the hernia. He was asked if he would permit me to try and relax him. After agreeing he was told to lie back on his bed and to stare at a fixed spot on the ceiling. It was then suggested to the patient that he was becoming more relaxed and drowsy. As the patient's eyes began to close they suddenly flew open, he looked at me, smiled, and turned back to face the ceiling. Thereafter, he responded to my suggestions of relaxation. He was told he would have a restful night and that the procedure would be repeated in the morning. No preoperative sedation was ordered. At the scheduled time the patient was placed on the operating table, and hypnosis was again induced. With the patient relaxed, he was placed in the lateral position and spinal anesthesia was administered. The operative procedure was carried out with

the patient's eyes closed and with the patient completely relaxed. He was given reassurances throughout the operation and the post-hypnotic suggestion was given that he would have no discomfort postoperatively. No analgesic agents were necessary afterward.

Hypnosis for Basal Anesthesia

Raginsky[21] has applied the term "balanced anesthesia" to the sequence of hypnosis and chemoanesthesia. This combination produces a more satisfactory anesthesia than can be obtained with any one agent alone. This technic reduces the need for heavy preoperative sedation, obviates the use of basal chemical agents such as avertin or intravenous barbiturates, and reduces the amount of inhalation agent necessary. This technic has its greatest application in pediatric surgery.[22] Psychic trauma, especially in children, is not shed as quickly as the effects of the anesthetic agents. Levy[23] and Coleman[24] have described some of the harmful effects of hospitalization, anesthesia, and surgery in children. Eckenhoff[25], studying the possible relationship between anesthesia and personality changes, concluded that 17 per cent of children manifested changes due in part to inadequate preanesthetic or anesthetic management.

Children are very easy to hypnotize during the induction of anesthesia. They usually make good subjects because they are imaginative. Visual imagery is projected by placing them in a trance and having them relive a television program which they enjoy particularly. The imagery becomes so real in their minds that they even report when the commercial appears on the screen. In all cases, the anesthetic mask is held a few inches above their faces and the gases allowed to fall by gravity over the nose and mouth. The mask is gradually lowered at evidence of sleepiness. Complete chemoanesthesia is then administered. During the induction phase the posthypnotic suggestion is given that they will have no pain or discomfort on awakening. Most of the patients require little or no sedation or analgesia postoperatively.

CASE 2.—A twelve-year-old boy was admitted to the hospital for the surgical correction of bilateral congenital clubfoot. He was seen on the afternoon before surgery at his bed on the open ward. His parents had been spoken to previously and after explaining the procedure, permission for it had been given. After ascertaining the personality of the child in conversation, he was asked to fix his eyes

on a spot on the wall and hypnosis was induced. In a matter of moments his eyes closed and he was asked to take us to the room in his house where the television set was placed, to turn on the knob, and when his favorite program came on to describe it. He was told that the more tightly he kept his eyes closed, the clearer the picture would appear on the screen. He proceeded to describe this program as if he were actually viewing it in the ward. The session was terminated by telling him to turn off the set and to open his eyes at the count of three. He was told that we would repeat this in the morning. The only preoperative medication ordered was a small dose of scopolamine.

As had been noted in other children, he was eager to start the program when he arrived in the operating room and saw me. He was completely impervious to his surroundings and the real purpose for coming to the hospital. Hypnosis was again induced easily and the television program started. During this phase he was to inform me when the commercial appeared. In this interval, he was told that he was becoming sleepier (because of the suspended mask) and would soon go to sleep. Posthypnotic suggestions were given that when he awakened he would have no discomfort, would ask to drink fluids, and would give the anesthesiologist a big smile. He was not aware of the mask being held from which the gases were falling over his face. When his words began to slur the mask was applied to his face and anesthesia deepened. A nonrebreathing technic using nitrous oxide and top ether was employed for a procedure lasting two hours, with only minute amounts of ether being necessary. His postoperative course was completely free of discomfort and required no analgesics or sedatives. He re-entered the hospital a month later for the correction of the other extremity. The same eagerness to start the television program was again evident.

Hypnosis as Major or Sole Anesthetic Agent

Total hypnoanesthesia may be used successfully in minor surgery in suitable patients. This includes reduction of dislocations and simple fractures, repair of lacerations, changing painful dressings, dental extractions, and dilation and curettage. It is of value in emergency minor procedures in patients with full stomachs. One must be careful to explain to patients what will be done. They usually will agree readily.

Hypnosis is seldom achieved nor is it completely justified as the sole agent in major surgery except in certain carefully selected patients and under suitable circumstances. Carefully planned rehearsal of surgery under hypnosis is necessary. Blunt instruments are used in these demonstrations. Hypnosis is not a substitute for chemoanesthesia, however. The latter is still technically superior to hypnoanesthesia. Further, hypnosis can be used only in about 10 per cent of selected patients. It should be reserved for patients who are poor anesthetic risks or are known to be excellent hypnotic subjects. In some cases infiltration of the skin with a local anesthetic agent supplements the hypnotic anesthesia.

CASE 3.—A ten-year-old girl had been admitted to the hospital six months prior to the present admission for third-degree burns of the neck, anterior chest, and both upper arms. She received only supporting therapy during the first two weeks because of her critical condition, except for emergency skin grafting to the arms and chest. This was accomplished under general anesthesia. Later, as the changings of dressings became numerous and required anesthesia each time, hypnosis was used successfully.

Her second admission was for the purpose of releasing severe contracture scars of the neck which had forced the chin onto the sternum with a complete inability to extend the head. An operation was scheduled for the release of the flexion contracture and for skin grafting. A hypnoinduction technic was used and then switched to chemoanesthesia. As the anesthesia was deepened to allow the insertion of an endotracheal tube, respiratory obstruction was immediately apparent. The anesthesia was lightened, 10 mg. of succinylcholine were given intravenously, but cyanosis again appeared. The diameter of the respiratory tract, already encroached on by the acute angle of flexion of the head, was further reduced by the depressive effect of the anesthetic agent. The operation was cancelled and it was decided to reschedule it at a later date under hypnosis.

Two weeks later the child was readmitted a few days before surgery. The patient and her parents were given an explanation of the method of anesthesia and since they were familiar with its use for the changing of the painful dressing during her first admission, they agreed readily. Two rehearsal sessions were performed on the days prior to surgery. Suggestions were given that her left arm

was becoming numb. When the numbness was complete she was to place it across her neck for transference of the numbness. Complete analgesia to pinprick was achieved at each session. The operation was rehearsed step by step using a blunt instrument and demonstrating how the surgeon would do the procedure. No premedication was given to the patient. On the operative day, the patient was again hypnotized in her room and taken to the operating room. After the patient was placed on the operating table, the hypnosis was deepened. Numbness was achieved in her left hand and was transferred to her neck.

During the preparation by the surgeon, constant reassurances were given to reinforce the numbness in the region of the neck. Although analgesia to pinprick was complete, the patient began to whimper softly at the incision of the scalpel. The face had been covered by the sterile drapes since the operative area was from the mandible to the sternum. This draping was utilized to fashion a tent over the face and an anesthetic tube was placed in this area to allow the gases to flow over her face. The analgesia proved sufficient to allow the surgeon to proceed without any objection from the child. As soon as the neck was opened wide, the anesthetic mask was attached to the tubing and was applied to the face. Total chemical anesthesia was then produced. It was simple to introduce an endotracheal tube with the head now fully extended. The surgeon then completed the necessary surgery including skin grafting in two and a half hours. Only small increments of cyclopropane anesthesia were necessary for the smooth conduct of the anesthesia. Since posthypnotic suggestions had been given, the postoperative period was completely without discomfort even though the child was placed in a plaster of Paris shell from the head to the waist.

Hypnosis in Treatment of Pain

The anesthesiologist who conducts a pain clinic will frequently see patients who complain of pain of unknown origin, postoperative pain and pain of malignant conditions. Nerve block therapy may have proved ineffective. Hypnosis can raise the pain threshold and relieve anxiety. The patient is given the posthypnotic suggestion that he will not mind the pain and that no stimulus, no matter how intense will disturb him. To be successful, the patient must accept the suggestion uncritically.

CASE 4.—A forty-four-year-old male had previously been operated on at this hospital for a laminectomy because of back pain. Postoperatively he developed pain down his left lower extremity posteriorly from the gluteal region to his heel. He was unable to sit or stand for any long period of time. There was also a feeling of tightness and pressure in the thigh and calf muscles. He found it necessary to use analgesic agents and sedatives for temporary relief of pain and insomnia. Two nerve blocks had been performed without success. A neurologic consultation had not revealed any overt pathologic condition to explain the symptoms. The patient was then referred for hypnotherapy. He agreed to try hypnosis and proved to be a good subject. Suggestions were given that the extremity was becoming numb and that the pains and pressure would soon disappear. At succeeding sessions the suggestions was made that only a mild discomfort was remaining and that no stimulus, no matter how strong, would disturb him again. He was able to reduce all medication gradually and to increase his hours of untroubled sleep. He received a total of ten sessions. It was suggested to him that if he had pain at home he was to sit on a chair, close his eyes, and concentrate only on his left leg. He was to suggest to himself that the muscles in his leg were becoming more and more loose. This form of self-hypnosis enabled him further to aid his recovery.

Hypnosis in Postoperative Complications

Occasionally patients develop symptoms postoperatively with no known pathologic condition. In such conditions hypnosis may be used for differential diagnosis followed by short-term psychotherapy. These symptoms include inability to produce adequate range of motion of an extremity, palpitation, pressure sensations in the chest and throat, flushes, sweating, hiccups, and inability to void spontaneously. Here the anesthesiologist must have some understanding of psychodynamics. If there is resistance to hypnosis it may be a reflection of the intense anxiety present in the patient. A psychologic or psychiatric evaluation of these patients should be done if an underlying emotional disturbance is suspected. In these instances, if the testing confirms the clinical impression, hypnosis should not be attempted by the anesthesiologist.

CASE 5.—An anterior and posterior colporrhaphy had been performed on a thirty-five-year-old white female. She had failed to void spontaneously for three weeks postoperatively. The opera-

tion was considered successful and at each catheterization the catheter was inserted easily. Hypnosis was suggested and the patient agreed eagerly. She entered a state of somnambulism quickly and easily, and the suggestion was given that she was relaxed and she would now be able to void. After she was awakened she stated that she felt that she could void in the standing position. In the next twelve hours she was able to "dribble" slightly in this position which was the first time that some spontaneity had occurred in the postoperative period. She then became panicky and demanded to be catheterized. However, when seen the next morning she was anxious to begin the session for she felt she had been helped. During the following twenty-four hours, although she still could void only when standing, she did not require catheterization. After the third session she voided spontaneously in the seated position and was discharged from the hospital.

Comment

Although the use of hypnosis in medicine goes back to antiquity in the early attempts of man to arrive at a means of analgesia in surgery, this form of primitive therapy can be utilized again with an organized rational approach in modern practice. The return to the use of hypnosis in anesthesiology is in part attributable to the current realization that psychologic factors are as pertinent as is the actual administration of an anesthetic technic. These cases presented represent situations in which forcing the conventional methods of anesthetic technics on fear-ridden patients might have resulted in poor anesthesia and possibly in tragic consequences. The patient who is very fearful before operation will often do poorly postoperatively. Schultz[20] has suggested that deaths have occurred in the operating room with negative findings at postmortem which may well have been due to excessive fear.

Cases 1 and 2 enjoyed a smoother course during the operative procedure and postoperatively than would have been the case without the adjunct use of hypnosis. In the latter instance the procedure was marked by a reduction in the total amount of chemoanesthesia necessary. In case 3 a tracheotomy was considered before surgery could be attempted owing to encroachment on the respiratory tract by the flexion contracture of the neck. Hypnosis permitted the surgeon to reverse the flexion without total chemical anesthesia. The value of this technic is proved by the fact that once

the head could be extended, intubation was accomplished easily. The discomfort contiguous with the incision by the scalpel despite the fact that the skin was completely analgesic to pinpricks has been noted by others employing hypnosis in plastic surgery.[26]

Cases 4 and 5 show that the anesthesiologist trained in hypnosis may contribute to the well-being of the patient and to the ultimate success of the surgical procedure by applying the principle of hypnosis for short-term psychotherapy in pain and in other postoperative complications. In the case of the patient who could not void spontaneously, after three weeks of this painful discomfort, she had a strong desire for relief but needed such help as hypnosis apparently afforded her to bridge this gap. Provided the anesthesiologist is aware that hypnosis may arouse more overt symptoms in a patient with psychiatric problems and acts accordingly, he may use this instrument without porducing abreactions.

Every patient scheduled for surgery is entitled to a sympathetic approach by the anesthesiologist. The relationship established by the anesthesiologist with the patient is a result of the confidence and understanding he can instill in the patient. This in itself is a form of hypnosis and, depending on the ability of the patient to respond uncritically to suggestion, the depth of hypnosis can be increased with further reduction in the amount of chemical anesthesia necessary for operation.

Hypnosis is indicated in patients whose apprehension regarding the anesthesia is so great that it interferes with the smooth induction of the anesthesia, in patients in whom the use of pharmacologic agents is contraindicated, in patients in whom the necessity for repeated anesthesia may create disturbances in the physiologic and mental status, in patients needing emergency surgery in which general anesthesia is precluded by factors such as a full stomach, and, last, as a short-term psychotherapeutic measure in patients with postoperative complications. Complete success is not always necessary as any degree of hypnosis obtained may prove beneficial to the patient. Any reduction in psychic tension will diminish the amount of chemical agents needed.

The disadvantages of hypnosis are that it is time consuming; it requires special taining and skill on the part of the anesthesiologist and an ability to manifest warmth, kindness, and understand-

ing toward patients; and not all patients can be hypnotized. There is also a risk in hypnotizing patients with serious psychologic problems. This is not a major issue if hypnosis is being used only as an adjunct to other methods of anesthesia. It is important to obtain a psychiatric evaluation if hypnosis is to be used as a psychotherapeutic measure.

Summary

The trend in anesthesiology is to consider the patient and his individuality. It has been shown that hypnosis can be applied profitably along with other methods of anesthesia to prepare the patient for surgery. The patient's postoperative comfort may be enhanced by posthypnotic suggestion. Hypnosis is an ideal and safe preoperative and basal instrument. The very fact that the anesthesiologist deals with pain should cause him to investigate the possibilities of hypnosis. He will find that hypnosis will produce a tranquil patient who requires minimal amounts of pharmacologic agents for anesthesia and sedation and who will have a comfortable postoperative period through posthypnotic suggestion. Hypnosis is thus another adjunct in anesthesiology to produce safe anesthesia.

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Discussion

VICTOR J. TOFANY, M.D., *Rochester, New York.*—Dr. Betcher's paper serves to emphasize a phase of anesthetic practice which will, in the very near future, become a fundamental requirement for the well-rounded anesthesiologist.

I should like to reiterate Dr. Betcher's emphasis on "adjunct."

Just as is the case in muscle relaxants and ultrashort-acting barbiturates, medical hypnosis should be used to supplement rather than to supplant conventional chemoanesthetic technics. It should never be employed in situations which exceeds its limitations. Here, as in many other situations, the "purist" is doomed to frustration and often to mediocrity, while the patient is forced to fit himself to a method, instead of the method being fitted to the patient.

When indicating the area of anesthesia, the choice of vocabulary is important, especially when dealing with children. One must be sure the patient understands what is desired. Also, when indicating anesthesia, every stimulus applied, such as skin preparation, examination, pressure of sponging, and so forth, should be utilized to reenforce the anesthesia already present in the area.

We find it preferable to carry out the induction of hypnosis before bringing the patient into the operating room. This prevents the undesirable stimulation caused by the sight of the operating room "props" since the patient then enters the operating room with his eyes closed. We invariably use rapid induction technics advocated by Philip Ament, D.D.S., incorporating proper philosophies with insight and understanding. These technics eliminate the large expenditure of time and effort required by longer induction technics and are more practical in a busy operating room schedule. This is especially true in the case of emergencies.

In the majority of cases it is possible to make the patient understand what is desired of him without lengthy explanation and discussion. Once he understands what is desired, induction can be accomplished in a short space of time. However, as Dr. Betcher has stated, rehearsal is necessary in cases of major surgery under hypnoanesthesia.

Many problems arise in conjunction with the use of hypnosis and therefore its use should be restricted to qualified operators who have an edequate background in psychodynamics. Under hypnosis the promise is elicited from the patient that he will never engage in hypnosis with anyone but a qualified physician or dentist. This serves to protect the subject from the danger of submitting to amateurs and, likewise, prevents autohypnosis with its concomitant misadventures.

The psychologically disturbed patient stands a good chance of

becoming more disturbed when subjected to hypnosis. In such a case the side-effects of the technic may well outweigh the primary or desired effect.

In the case of the patient who uses his pain or symptom for secondary gain, as in compensation cases, the use of medical hypnosis may well result in frustration both for the operator and for the subject. In such a situation the problem is generally at the unconscious level so that the patient is not aware of it. Whether or not to embark on a psychotherapeutic regime with such a patient should be determined by the background of the operator. I feel that this problem is better handled by someone other than the anesthesiologist, and I would, personally prefer to avoid this type of case. This does not mean, however, that I object to the "minor psychotherapy" described by Dr. Betcher. On the contrary, we are enthusiastic about our results to date, and feel that this area may prove to be a most fertile one for medical hypnosis.

During the postoperative period one must be careful to avoid masking postoperative complications when using posthypnotic suggestions. For example, the anesthesia indicated for the postappendectomy patient should be located in the area of the wound only and not in the entire abdomen. Time distortion can be utilized in the case of the patient with an indwelling catheter or a nasogastric tube to make the appliance feel "as if a part of" the patient.

The horizons of medical hypnosis are yet to be defined and the swift turning of the clock precludes philosophizing at this time. I would close with one simple, but, I hope, not trite statement.

If the use of medical hypnosis as an adjunct in anesthesiology achieves nothing more than the establishment of a solid doctor-patient relationship, a definite forward step will have been made in the development of anesthesiology. This eventuality will, I am sure, be welcomed most readily by that forgotten man, the patient.

New York City, New York.

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Journal of the American Society of Psychosomatic Dentistry and Medicine

HYPNOSIS INDUCING CANNABINOLE ANALOGS

By MAHMOUD K. MUFTIC, M.D.

Motto: "One who wishes to journey to the land of Morpheus on the chariot of cannabis is liable to see some curious sights on the way."

(Robert S. de Ropp)

THE use of drugs to alter the resistance in hypnosis has also long been known as part of primitive tribal ritual and medieval witchcraft. In the modern research the study of effect of drugs in induction of hypnosis is limited by several handicaps. Firstly, evidence is mainly subjective: psychological data lacks precision in that mental events can only be described in words which are themselves often open to varied interpretations. Secondly, there is no accurate measurement of what constitutes wakening state or departure from it. The brain is not a "specific" organ in the sense that the intestines or heart muscles are, and it is therefore difficult, if not impossible to accurately assess its functions. And thirdly, drugs acting on the brain may excite and intoxicate while they also inhibit or sedate different levels of consciousness. These limitations, resulting from subjectivity, inadequate terminology, lack of specificity, etc., are largely responsible for the considerable divergence of opinion that prevails regarding the place of drugs inducing hypnosis. Nevertheless, therapeutic nihilism is no substitute for scientific scepticism. To the hypnotist they are a useful means of potentiating hypnosis or making the subjects more amenable to it. An exhaustive list of such drugs would be beyond the scope of an article of this nature; however, it would be useful to consider some already used.

The first systematic studies on the hypnosis including drugs were carried out by Kraepelin whose centenary in 1956 was overshadowed by that of Freud. Many drugs, were intensively studied by means of the somewhat rudimentary technics provided by experimental psychology, which was then in its infancy. His researches were concentrated in predicting accurately on the basis of height, weight, age, sex and personality traits the dose of a certain drug that is necessary to produce particular effects. P. Brotteaux (1) was first to introduce a drug for induction of hypnosis in clinical use. It was a preparation called scopochloralose, which he gave to the subjects several hours prior to induction of hypnosis. He re-

ports in succeeding to shorten periods of induction, and to overcome several previously resistent cases. Gradually he diminished doses of scopochloralose, without the knowledge of the subject, up until the swallowed tablet contained only an inert substance. In further researches Brotteaux P. (2) reports that preparations of cannabis sativa have more exalted properties in hypnosis induction than scopochloralose. He wrote that all stimulations became enhanced by cannabis.

Since long cannabis has been used in therapeutics. Murray in "Apparatus medicaminum" recognized the particular effect of cannabis on the nervous system. A great number of physicians of the past century published several papers on their experiences with cannabis in India. Most of them are illustrious names: O'Birest, Raleigh, O'Shaughnessy, Esdaille and others. Léautaud and M. Moreau de Tours (3) published in 1845 a monography corcerning their observations of the cannabis action on animals and humans. They found that cannabis has hallucinogen action resembling very much the properties of recently discovered drugs mescalin and lysergic acid dietanolamide. The hallucinations produced by cannabis are related to the customary ideas of the subject, which consume this drug. Moreover they are deduced from the actualities which has been significant for the subject imminently before drug action starts. It is necessary some time to induce such hallucinations by associative conversation between experimenter and subject. In the further phase of action the ideas of space and time became completely distorted. This phase ends by a long period of tranquility and profound stupor. Brotteaux divides the cannabis effects into four stages: 1. A period of nervous excitation; 2. A period of hallucinations and mental instability; 3. A period of ecstasy and profound tranquility; 4. Deep sleep which terminates by a rapture. It appears that cannabis has combined properties of an euphoric, hallucinogen, tranquilizer and stupefiant. In the first phase it stimulates the reticular system of the brain stem, in the same dissociating cortical functions, inhibiting or exciting some of them, without a predicted plane. Cannabis joins both psychotomimetic and psychotolytic properties, giving to the psychopharmacologist a curious enigma to dissolve.

Rothman and Seward combined soporific action of Pentothal with stimulant action of Benzedrine, administering both drugs intravenously. This procedure decreased the excessive tension of the

patient and at the same time promoted a state of alertness, spontaneity, and well-being. The isolation of the subject was broken down, a gate opened in the wall of fear and tension with which he had formerly been surrounded, wide enough for the hypnotist to squeeze through and establish contact. This work is of great interest because it combines two drugs having pharmacologically opposite actions, one being a depressant, the other a stimulant. One might suppose that they would cancel one anothers effects but this does not appear to be the case. R. A. Sandison (4) said that new hallucinogen LSD (lysergic acid dietanolamide) when used as an adjunct to skilled psychotherapy, is of the greatest value in resistent cases. Age regression, and hypermnesia were especially influenced by the use of this drug. Even primordial images related to the collective unconscious of the race can be revealed by this mode. Cannabis seems to have similar properties, as far as hallucinogenic effects regards. These hallucinations are progressive almost voluntary, and ripens only through the action of the imagination. Sounds may seem to say strange things, but there always was a sound in the first place. Strange shapes may be seen, but before becoming strange the shapes were natural. Cannabis in short may distort but it does not create that which is not there. Cannabis serves only to magnify that which is already present in the soul of subject, and such subjects receive hallucinations which their nature dictates. Even the same person does not necessarily react in the same way on two successive occasions. C. S. Parker and F. Wrigley (5) used synthetic cannabinol derivatives to induce characteristic effects including euphoria, with disturbances of time and space perception, sometimes accompanied by visual imagery and usually followed by profound relaxation and sleep. A striking feature may be the vivid recall or re-experience of feelings long since past and formerly forgotten.

The properties of cannabis sativa preparations, with its particular effect on magnifying of imagination, incite us to investigate some natural, semi-synthetic, and synthetic analogs of cannabinole, as the adjunct in induction of hypnosis.

Experimental

To test the value of cannabinol analogs in induction of hypnosis, the author carried out experiments with susceptible and resistent hypnotic subjects — that means subjects who have previously ex-

perienced various hypnotic phenomena, as age-regression, multiple personality, hallucinations, amnesia, etc., and who are able to enter trance. The same experiences were done with resistant subjects, who were not able to attain such phenomena in previous attempts. Both groups of subjects were tested in individual sessions and the author used a 20 minute standard hypnotic induction procedure, according to the M. H. Erickson (6) utilization technic. This technic is in essence no more than a simple reversal of the usual procedure of inducing hypnosis. Ordinarily trance entrance is based upon securing from the patient some form of acceptance and co-operation with the operator. In Erickson utilization technic the usual procedure is reversed to an initial acceptance of the patients presenting behavior by the hypnotist, and a ready co-operation with it by the hypnotist, in spite of a contradictory state of such behavior in the beginning of the session. Immediately after giving positive responses to a number of tests e.g. sensory hallucinations, pin-prick analgesia, age regression, catalepsy, the subjects were awakened and appointed for the next session. In the case sheet, all necessary data were noted, as regard induction time and the grade of performance of the described hypnotic phenomena using a tautological scale I=means perfect performance, II=means good performance, and III = means hesitating performance. The failure to perform a certain phenomenon was designed as partial resistence, and failure to enter in trance as a general resistance. In the next session after two weeks, the same subjects were hypnotized again, this time after application of cannabinole analogs. We used three different preparations: 1. Cannabinol (U.S.P.XI); Tetrahydrocannabinol; 3. Synhexyl (5). The drugs were prepared in sterile saline, using between 80 as dispersing agent, the dose was 1-3 mg. per kilogram of body weight intravenously. The injections were given a quarter hour before hypnosis induction. Blank preparation without cannabinoles were used also, for exclusion of possible placebo reactions.

For the accurate estimation of the facilitating action of cannabinols in the induction of hypnosis we used G. H. Estabrooks (7) galvanic skin response (GSR) alteration, in testing transitional states: awakening/hypnosis/awakening, in the first and second session. Electrodes connected in series with a weak source of current and a measuring system (galvanometer and rheometer) were attached to the subjects palms and they were hypnotized as described. A record was made of the subjects GSR before hypnosis, before cannabinol application, after cannabinol application, after induction

of hypnosis and during performance of hypnotic tests. Many arguments may be presented against use of GSR in measuring of hypnotic states. Perhaps the chief objection is that relatively few subjects can achieve a deep trance, which is essential in producing changes of a higher amplitude in GSR. That is the main reason that A. B. Sears and Beatty Jeanne M.A. (8) found no significant difference in GSR in many hypnotized subjects, especially in neutral hypnosis. Erickson M. H. (9) estimates that the vast majority of subjects can reach a somnambulistic stage of hypnosis, provided the right technic is employed. Of interest in this connection is the recent use of narcotics as an adjunct to hypnosis. Some patients who resist deep trance states enter somnambulism easily under the influence of hypnotic drugs. Posthypnotic suggestions made to the patient during the narcosis, to the effect that he will subsequently be susceptible to regular hypnotic technic, may sometimes make a somnambulistic trance possible where no other technic has succeeded previously, as has been described by Wolberg L. R. (10) In the same case sheet where previous observations were noted, the results observed after use of cannabinoles are registered. Our preliminary researches were done in groups of 10 subjects for each particular cannabinole analog. The subjects were chosen between persons of different grade of susceptibility and resistence. The results were described in table 1, 2 and 3.

Table 1—Cases treated with cannabinol 3 mg/kg i.v.

No.	I	II	III	IV	V	VI
1	10	++	++	+	+	±
	5	++	++	++	++	+
2	12	+	+	±	+	±
	5	++	++	+	++	++
3	10	+	+	±	+	—
	3	++	++	+	++	+
4	15	+	±	±	+	—
	10	++	++	++	++	+
5	18	±	+	+	±	—
	6	++	++	++	++	++
6	20	—	—	±	—	±
	15	+	+	++	+	++

No.	I	II	III	IV	V	VI
7	20	—	—	—	—	—
	12	+	+	++	+	+
8	20	—	—	—	—	—
	5	+	++	+	—	++
9	R					
	20	++	+	+	+	+
10	R					
	5	++	+	+	+	+

Table 2—Cases treated with tetrahydrocannabinol 2 mg/kg i.v.

No.	I	II	III	IV	V	VI
1	15	+	+	±	+	—
	5	++	++	+	+	+
2	10	+	+	+	+	+
	5	+	+	+	+	+
3	12	+	±	±	++	+
	5	+	++	+	++	++
4	8	+	++	++	++	+
	5	+	++	++	++	+
5	20	+	±	±	±	—
	6	+	+	+	++	+
6	R					
	5	+	+	+	+	+
7	10	+	++	++	++	++
	8	+	++	++	++	++
8	R					
	6	++	++	+	+	+
9	R					
	10	+	+	±	++	±
10	R					
	3	+	++	+	+	+

Table 3—Cases treated with Snyhexyl 1 mg/kg i.v.

No.	I	II	III	IV	V	VI
1	10	+	+	+	+	+
	4	+	+	+	+	+

No.	I	II	III	IV	V	VI
2	15	±	—	±	±	±
	5	+	+	+	++	+
3	18	±	+	±	±	±
	5	++	++	+	+	+
4	20	—	—	±	—	—
	8	++	++	++	++	+
5	20	±	±	±	±	—
	5	++	++	++	++	+
6	15	+	±	±	±	—
	5	+	+	++	+	+
7	R					
	10	+	++	++	++	+
8	R					
	1	++	++	++	++	+
9	R					
	14	+	+	+	++	+
10	R					
	5	+	++	+	++	++

Legenda: First line represents results before, and second line after use of drugs. I=Induction time; II=Pin-prick analgesia; III=Age regression; IV=Catalepsy; V=Sensory hallucination; VI=GSR; R=Resistant; —=Failure; ±=Weak; +=Strong; ++=Very strong response or performance.

Results

The evidence of the role of cannabinole analogs in facilitation of induction of hypnosis, deepening of trance and improvement in performance of different hypnotic tests is quite clear. There was not a single case showing resistance to hypnosis after use of cannabinole analogs. Unusual or toxic side effects after intravenous injection of cannabinoles were not observed. In spite of intravenous use cannabinole, it does not act like barbituates immediately. An interval of 10-15 minutes is usually necessary to obtain optimal effect. The subjects were not informed what signs are to be expected. It is interesting to mention that most resistant cases become very susceptible after use of cannabinoles, and susceptible cases do not

show high differences between hypnosis with or without cannabinole. It seems that resistant subjects are more hypnotizable once barriers of resistance are broken. It appears that heightened imagination after cannabinole action potentiates impetus to the subjects integrated response created by suggestion. Positive reaction to a specific suggestion is always enhanced by the hypnotist use of the subjects own faculties. The action of cannabinole stimulates an increase in function of a potential which has always been present in the mind of his subject. Grasping this enhanced potential, yet liberated from the hindrance action of resistance, hypnotists achieve a deep trance in all treated cases.

Discussion

Hypnosis depends to some degree upon the impulsiveness of the subject. It utilizes the impulsive characteristic dormant in all human beings. It is an automatic revert to a lower consciousness level, a spontaneous age regression before a specific suggestion was given. On this level the subject has got to think for himself. Here, the hypnotist replaces his coordinating center, and every suggestion translates itself into a command which must be obeyed. The action of cannabinole provides a behavioral reaction control resulting from stimuli which would ordinarily be incapable of producing the given response without drug. Cannabinole can provide a weak stimulus, which in ordinary situations would not cause the reaction, to be magnified and interpreted according to the hypnotist wishes. The subjects logical faculty was inhibited and he accepts everything we tell him. He reacts to suggestion as a stimulus, even though it may exist on non-logical grounds, and was previously rejected by the same subject. This brings up a curious question. What hypnotized the patient? Was it merely cannanibole injection. or was it monotonous suggestion of relaxation? I believe that both of them have been responsible in the induction of trance. Cannabinole stimulated the subjects imagination, provided him with belief. It is true that cannabinole conditioned the subject for hypnosis before the hypnotist opened proceedings, but the hypnotist's words must closely follow the subject's action without his growing aware of it. The interaction of these two factors made the subject believe that he is following the hypnotist's suggestions, although the reverse is true. This is the advantage of the utilization technic, that the subject becomes less and less aware of what is happening. The subconscious of cannabinole treated subjects merely accepts the result of conscious rea-

soning of hypnotists, transferring these deliberative consequences into action. To clarify this process, we might consider the nature of resistance, which was completely or in the greatest part inhibited by cannabinole action. There are in general two types of resistance to hypnosis. The first type is related to the unconscious drives and impulses, and the second type arises out of the transference. In the first type regression and revivification recall resistance to defy most persistent efforts of hypnotist to come to the individual and expressive faculties of the subject. Probably of more importance is the artificial fusion of the subject and hypnotist that occurs in time of induction. In some cases the subjects ego appears to be frightened by sentiment of losing self-control, and being left without choice retreats by an uncooperative manner. Resistances that issue out of the transference is much harder than the previous one. Almost immediately after the beginning of hypnotical induction, subjects may experience feelings and impulses of the deepest nature, toward hypnotist. According to M. Brennan and R. P. Knight (11) resistance as defense against such feelings is inevitable and usually cannot be dissipated by suggestions only.

Very large amounts of crude cannabis preparations are consumed in the Middle East. What is the nature of the cannabis action giving it a peculiar attractivity in this area? It seems that no real light was shed on the nature of this very elusive effect until now. It is not a particular addiction drug. It is more or less a collective habit to consume cannabis. The pleasure and arousal are more suggested, than really experienced. It is only by deeply implanted suggestions that cannabis consumers adhere to the continuous abuse of the drug. It is only by feeding cannabis that the Great Master of the Assassins hypnotized in mass his followers, who were able to conserve full strength and peculiar obedience to the posthypnotic suggestions of their Master.

Gaza, Palestine, U.A.R.

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BOOK REVIEW

HYPNOSIS AND ANESTHESIOLOGY

By MILTON J. MARMER, M.D., M.Sc., Med. (ANES.)

Published by CHARLES C. THOMAS
Springfield, Illinois, 1959

By VICTOR J. TOFANY, M.D.

THIS book deals with a highly specialized use of hypnosis, namely, its use in the field of anesthesiology. It is recommended for anyone interested in anesthesiology or its related field. The author calls on a wealth of personal experience in presenting a comprehensive treatise on the use of hypnosis in the practice of Anesthesiology. He begins with a short chapter on historical background followed by a chapter on the psychophysiology of hypnosis and then briefly considers the physiological aspects of anesthesiology. After a rather concise description of the various induction techniques which are treated in some detail including phraseology, the remainder of the book is devoted to specific examples of the use of hypnosis in the field of Anesthesiology. Many case reports are used to demonstrate its application in the individual situation. Throughout the book the author maintains a "down to earth" attitude, continually emphasizing the limitations and dangers as well as the advantages of hypnosis in anesthesiology. Much stress is placed on the use of hypnosis in combination with chemical anesthesia. It is this approach which should prove most useful to the average reader of this book. The author closes with a short discussion of the dangers and a word of precaution, followed by a very adequate bibliography.

This book should be a fine addition to the library of anyone interested in hypnosis and/or anesthesiology. It should serve as a good prototype for publications and other medical specialties in which hypnosis has application.

LETTER TO THE EDITOR

"I would appreciate your publishing the enclosed letter in your Journal as my answer to an Editorial which appeared in the July 1960, volume three, number one, of the American Journal of Clinical Hypnosis."

Jacob Stolzenberg, D.D.S.

Milton H. Erickson, M.D., Editor
American Journal of Clinical Hypnosis
Phoenix, Arizona

Dear Doctor Erickson:

The recent editorial in the July issue, Volume 3, No. 1 of the American Journal of Clinical Hypnosis presented quite a few distortions and implications.

While the sincerity of the author and his point of view are not questioned, it is noted that the author refers to the fact that an "Honorary Certificate" as a "Diplomate in Dental Hypnosis" had been suggested to him. This would imply that the suggestion came from the American Board of Hypnosis in Dentistry, which definitely is false!

As Chairman of this Board, and in fairness to the five Board members who are all Fellows of the American Society of Clinical Hypnosis, sincerely interested in developing hypnosis as a modality purely within the field of dental competence, I would appreciate your printing a statement to the effect that the suggested certification as "Diplomate in Dental Hypnosis" did NOT come from the American Board of Hypnosis in Dentistry.

I might add that this Board was deemed necessary because no other organization had ever made the slightest attempt to screen practitioners of hypnosis within their field of professional competence, and we are making a legitimate attempt to set up definite standards for the protection of the public as well as the integrity of the dental profession.

Sincerely yours,
Jacob Stolzenberg, Chairman
American Board of Hypnosis in Dentistry

JS:do
cc: Dr. Frank Pattie
Dr. Herbert Mann
Dr. Edward Aston
Dr. Seymour Hershman

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